

# Newsletter



Hello and welcome to the July newsletter! We've got lots of interesting articles for you this month, from an exclusive interview with Austin Stevens to the "Great Substrate Debate", and "Do Lizards Dream?".

Keep an eye out for the next issue which will feature a short piece on the Doncaster trip for all those unable to go and more! If you would like to write for the newsletter or even have an idea for a story, then contact me on [esras.uk@gmail.com](mailto:esras.uk@gmail.com) or at a members meeting for more information and support.

Also, watch for more information on the BBQ and other events on the ESRAS Facebook page, such as nearby reptile expos and displays by us.

- Beth



## ESRAS MEMBERS ONLY AUGUST BBQ

WEDNESDAY 3RD AUGUST 7:30PM

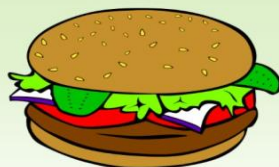


**Food and Drink will be provided in the form of Burgers, Hotdogs with Meat and Vegetarian options of both available.**

**Soft drinks will also be provided and Sides including Coleslaw and Potato Salad and also Sauces.**

**Feel free to bring along anything you wish to add to the food and drink but no need to feel obliged at all.**

**Hoping for good weather so we can the enjoy the outdoors and fresh air.**



**Below is an exclusive interview with well-known herpetology expert, Austin Stevens on his experiences throughout his work with animals.**

**1. How did you find yourself doing the work you do involving the wild animals you work with and research?**

**ANSWER:**

Much of my history of origin I have included in my 3<sup>rd</sup> book; SNAKEMASTER. (Published by Skyhorse Publishing, USA, 2014.)

Briefly stated, I began collecting reptiles at around the age of 12. My fascination with these reptiles persisted throughout my teen years living in South Africa, and later was the catalyst that introduced me to my first posting as assistant curator of reptiles at the Hartbeespoort Dam Snake and Animal Park. I later took a similar position at the then named Transvaal Snake Park, (no longer existing) where I remained for 6 years. I was thereafter offered the opportunity to help design and bring into operation a small privately owned reptile park in Germany, which I did for a few years. On my return to South Africa, I once again took up position as curator of reptiles at the Hartbeespoort Dam Park. Leaving Hartbeespoort for the last time in 1992, I relocated to Namibia, where I pursued my interest in wildlife photography and writing. I had by this time published close to a hundred wildlife articles for magazines around the world, supported by my own photography, and published my first book; Snakes in My Bed. (Now out of print)

News of my exploits involving reptiles came to the attention of various overseas documentary film companies who then consulted with me when planning documentary films in Southern Africa. (I had by this time made 2 wildlife documentary films of my own, one about venomous reptiles, and another about desert chameleons) And so it evolved that later I was asked to appear on camera in some of these ventures. This eventually led to the making of a documentary titled, SEVEN DEADLY STRIKES, in which I dramatically displayed the defensive behaviours of seven highly venomous African snakes in their natural habitats. This film was well received and became the catalyst to my being approached by Discovery Channel/Animal Planet, to design a 15 part series about dangerous reptiles around the world; AUSTIN STEVENS –SNAKEMASTER – AUSTIN STEVENS MOST DANGEROUS. Thereafter I was further contracted to complete another 12-part wildlife documentary series concerning this time not only reptiles, but dangerous mammals as well – AUSTIN STEVENS ADVENTURES. All in all, a total of some 8 years in the making.

**1. Do you have any animals at home and if so what are they [they needn't be exotics]?**

**ANSWER:**

For many of my earlier years living in Southern Africa I kept a collection of reptiles, local and exotic, venomous and non-venomous. I also, over the years, kept a number of rats, which I found to make interesting and clever house pets. At one time I even had a few pairs of marmoset monkeys, and squirrel monkeys. However, my most interesting pets came in the form of two fascinating and loveable sable ferrets, which freely roamed my house causing playful havoc wherever they went. I loved them dearly and named them Mork and Mindy, after the TV show comedy characters.

In Namibia I had a variety of animals pass through my cottage, including a meerkat, a bat eared fox, a number of tortoises, a family of barn owls, a fish tank, and of course a variety of unwanted snakes that I had rescued from homes. In more recent times, since relocating to Australia, I have not kept house pets as such, - other than a few green tree frogs, geckoes, eastern skinks and brown skinks, a variety of bird species, and the occasional brush-tailed possums that appear and disappear randomly around the house whenever they may decide to do so.

**2. If you do have animals which one is your favourite, if you do have one?**

**ANSWER:**

As previously stated, I am at present not actually keeping any pets of my own, however, of all the little wild Australian animals that pass through my property, it is the green tree frogs that most evoke my interest. Not only are they pretty and cute, and make for wonderful photography, but they can also be comical with their antics. And their calls, echoing from various invisible locations (including the gutter pipes) throughout the hot, and often wet, summer nights, is a delight.

**3. You travel the world searching out exotic species and hidden animals, what has been your most rewarding adventure and you most difficult animal to find?**

**ANSWER:**

Travelling in itself is the highlight of how I live. I am cursed with an insatiable curiosity, and get bored if I do or see the same thing twice. This means I am never truly at rest, mentally as much as physically, and am forced to cover a lot of ground, physically and metaphorically speaking. It makes me a loose cannon, a restless person, and someone difficult to understand, and even more difficult to be with. I am only happy when on the move, and besides having flown all over the world, I have physically driven vehicles in various countries over hundreds of thousands of kilometres of terrain. All in an attempt to "see it all" and hopefully uncover some small glimpse of what the meaning of this life might be. It would therefore be impossible for me to say exactly what has been the "highlight" of my travelling life so far, other than to express the excitement I feel every time I cast my eyes over some magnificent wilderness I have never seen before.

Were I to consider moments of personal fulfilment throughout my travel adventures, I could more easily name certain times and places. Like when placing my hand on the head of a hooded king cobra in India. This was a highlight of my travel life, as was my first sighting in Peru, of the elusive 18 foot green anaconda that I finally glimpsed swimming through the watery jungle undergrowth where I had been searching for six weeks. And when I conquered my claustrophobia (a very personal achievement) and entered the underground cave of winter denning rattlesnakes in New Mexico, -- this was literally a heart-pounding experience. All these, and many more similar experiences may be categorised as highlights of my travel career. Certainly too many to mention all in this one article. (Once again, much of this is discussed in my latest book, Snakemaster.)

**4. I have watched many of your programs and I like the respect that you have for the animals within their natural habitat, in your opinion which has been the most beautiful one to date?**

**ANSWER:**

As a naturalist, I am fascinated by so many species of wild animals other than reptiles. The African Cape hunting dog is one, spotted hyenas another, while my all time favourite wild animal is the desert elephant of Namibia. These desert-adapted elephants are physically no different from inland elephants. They are the same species, but due to human activity and encroachment reducing their home range, they have been forced to adapt to the desert environment. Surviving in such a harsh place is an incredible feat considering the amount of food and water an elephant must consume each day. Desert elephants must cover vast distances in search

of water. Their waterholes can be a few days' journey apart and in times of drought the elephants often find themselves having to dig for water in dry riverbeds. Because of the desert heat these elephants travel mostly by night and are able to communicate with each other over long distances using sounds outside the range of human hearing, and in this way the herds can avoid converging on the same scarce resources. For desert elephants, every day presents a new battle for survival, and I admire their courage and tenacity, and I have spent as much time as possible out in the desert with them. These elephants, and including the magnificent surrounding desert-scape where they live, is what I miss most since having relocated to Australia.

**5. What was your scariest moment whilst filming or researching for one of your books?**

**ANSWER:**

There are in fact numerous scary moments to recall during the filming of my series. In spite of the occasional accident, I still consider myself one of the more fortunate herpetologists claiming few dangerous bites from venomous reptiles. This, considering that I have extracted venom from hundreds of snakes, performed hundreds of public shows and lectures, and have spent years in the field catching and photographing venomous snakes. However, of these accidents, without question, the most embarrassing remains the snake-bite I endured, on camera, from the snouted cobra encountered on my very first shoot as, Austin Stevens... 'Action Presenter'. (Seven Deadly Strikes)

My first rule while filming has always been, *keep filming*, no matter what. I feel it is important to record every incident, planned or unplanned. Even in the case of a life threatening occurrence, (as the snouted cobra bite incident turned out to be) it is important to keep one camera rolling. Otherwise it will all be for nothing. (And besides, it makes for 'good telly', as the British would say.)

What the viewers watching my shows do not realise, is the dangers that exist outside of potential snakebite poisoning. While filming in Komodo, I fell down a shaft in a cave to land on jagged rocks below, tearing tendons in my left foot and breaking four ribs. This stopped filming for 4 months. Filming in Australia, I almost drowned after being knocked off a cliff ledge by a helicopter skid, landing me in a powerful stream of white water rapids, where I was sucked under by a whirlpool effect. I am still today terrified of drowning, though I continue to enjoy swimming in wild places.

In Borneo I contracted a mystery disease that affected me for months, making continued filming a strain, until finally the symptoms abated of their own accord. I have also contracted malaria, a most unpleasant disease that affects me still today, as does Ross River Virus, another mosquito-born disease that affects my muscular performance. In my latest book I discuss these happenings, and more, in detail.

It is natural that if one takes part in a lot of active, relatively dangerous activities, the potential is there for things to go wrong. Those who swim in the sea are most likely to be bitten by a shark, for example. By the same token, those living in cities and crossing the street everyday are most likely to be hit by a car. So it is natural to expect that those working with venomous snakes on a regular basis are most likely to be bitten. If one were to dwell on these considerations, one would not get out of bed each day for fear of some or other accident taking place.

**7. You are incredibly busy dividing your time between your film work and your books what do you like to do to relax in your spare time?**

**ANSWER:**

Over the many years of filming my two adventure series my time was mostly fully absorbed by the projects. Not only were the film shoots themselves demanding, but so too the vast amount of preparation, scheduling, organisation, and travel time, which invariably included multiple flights and numerous other means of transportation. This proved to be very taxing, and usually on my return home after each shoot I would find myself heavily jet lagged and too exhausted to do very much with the in between days leading up to the next shoot. I did however, between the two series, somehow manage to complete and have published my second book; THE LAST SNAKE MAN, (published in UK) which was a large format work consisting of a collection of my wildlife adventure projects, general information about reptiles, snakebite and the treatment thereof, as well as a wide assortment of my photographs, including many taken on film location.

Though I enjoy writing, the long hours of sitting at the laptop eventually leave me restless, and I crave outdoor activity. I am by nature restless, and only happy when involved in projects which test my abilities and imagination. Admittedly I am getting older now, and am faced with certain restrictions, but I still crave the need for the satisfaction that I get only when outdoors in the wilderness, especially that of Africa, where my heart remains forever.

**8. If it is not too secret, what are you currently working on?**

**ANSWER:**

For various reasons outside of my control, I have not been involved with any further film work for a while now, but have concentrated mostly on writing articles, publishing my book, SNAKEMASTER, and also completing the text for my next book which is a more comprehensive autobiographical rendition of my life story, including not only my work over a period of some 40 years, but also including my more personal history, the good and the bad. I have titled the work, RUNNING WILD, and am at present scouting for potential suitable publishers. Wish me luck.

**A personal note from me:**

To all my loyal fans out there who have followed my career, read my books, and voiced your support through my website [www.austinstevens.net](http://www.austinstevens.net) and on my Facebook page, [www.facebook.com/austinstevensadventurer](http://www.facebook.com/austinstevensadventurer) and by supporting my online shop <http://www.redbubble.com/people/astevensadmin/shop> I would just like you to know that I read every message, and deeply appreciate your interest in me and my work.

I can only hope that to some small extent I might have provided some inspiration for you to investigate the miracle of nature, and all the wondrous creatures existing in it.

**Remember; when in doubt... take a picture.**



This article is brought to us by Shirley, in her first ever newsletter article. Thank you very much for your contribution!

## Scientific News in the World of Reptiles and Amphibians

### Can Lizards Dream?

Scientists studying the bearded dragon (*Pogona Vitticeps*) have discovered the lizards share similar patterns of sleep with humans, other mammals and birds. Researchers from the Max Planck Institute for Brain Research in Frankfurt, Germany monitored the brain activity of bearded dragons whilst asleep and found evidence of cycles of REM (rapid eye movement), which within humans this is a time where there is the propensity to dream vividly, and slow-wave sleep, both of which were previously thought of as being limited to mammalian and avian species.



The study found the rhythm of sleep of the monitored lizards was faster and more regular than those of humans. The bearded dragons would experience the alternate effect of slow-wave sleep and REM around 350 times per period of sleep and these would last on average 80 seconds each time. Humans in comparison have cycles lasting roughly an hour and a half.

The research suggests that a common ancestor for reptiles, bird and mammals evolved these sleep traits some 300 to 320 million years ago, 100 million years earlier than previously thought. Lead researcher Dr Gilles Laurent hypothesizes these ancestors were probably 'small and lizard-like animals' that lived during the time the continents of the Earth consisted as a single land mass.

It leads to an interesting question – can bearded dragons dream? Dr Laurent conjectures they might in a rudimentary fashion and states "If you forced me to speculate and to use a loose definition of dreaming, I'd speculate that those dreams are about recent notable events: insects, maybe a place where there are good insects, an aggressive male in the next terrarium, et cetera".

### Nature's clever design – crocodile eyes

A study of crocodilian eyes has revealed they are specialised for lying in wait at the water's surface to watch for prey. The crocodilian's 'fovea' (part of the eye with densely packed receptors that provide sharp vision) is a horizontal streak rather than the more common circular spot and gives the reptile the ability to lurk within the water and scan the shoreline without moving their head.



Australian researchers also found that saltwater and freshwater crocodiles had differences in their colour-sensing 'cone' cells. Nicolas Nagloo, a PhD student at the University of Western Australia explains in the *Journal of Experimental Biology* that while crocodiles have blurry vision and cannot focus underwater, they still use their eyes whilst submerged. It was discovered the light conditions are different in saltwater and freshwater habitats (more blue light found in saltwater and red light in freshwater) and crocodiles' eyes have adaptations for this. These light sensitivities were unexpected due to the animals only being semi-aquatic and spending their time on land to hunt, feed and mate giving way to speculation that there may be "some aspect of their underwater behaviour that we're not aware of yet."

This article was written for the newsletter by Dougal, and it is also his first time writing for us. Thank you very much for your contribution!

### Substrate – the Great Debate

If you have ever perused the various reptile forums or Facebook pages dedicated to herpetology you will probably have noticed that questions are often raised, usually by those just starting out, about the suitability of the many different substrate options commonly used within our hobby. Within this article I intend to take a look at the advantages and disadvantages of the most commonly available substrates used by reptile and amphibian keepers together with a few that should ideally be avoided due to their previously known risks.

Following their initial research many first time owners, having heard concerns about the risk and often fatal side effects of impaction, sometimes alternately referred to as compaction, opt to start out with relatively basic sterile enclosures with a non-particulate substrate. The options here range from a bare floor, paper towel, newspaper, lino or reptile carpet (a type of synthetic felt). The advantages to this approach are that there is zero risk of impaction from ingestion of particulate substrate, most are relatively cheap, allow for easier monitoring during quarantine for parasites such as mites and are relatively quick and easy to clean or replace.

However, these are not usually particularly attractive and there are also some associated problems that can arise using this method including the need for more regular daily maintenance to remove urates and faeces, potential egg binding in gravid females due to non-provision of suitable egg laying sites, not being suitable for fossorial species that like to burrow or require humidity (even species that require low humidity levels may have problems shedding) and limiting environmental enrichment.

Additionally Lino and other household floorings can be harmful when used in warm poorly ventilated set ups due to the release of toxic chemicals. There have been some claims that newspaper print may also release harmful fumes. Whilst petroleum based inks are known to emit toxic fumes; most ink used within the modern newsprint industry since the 1990's is soy bean based which is generally deemed to be safe. Reptile carpet tends to curl up allowing live food to hide preventing it from being consumed and occasionally claws may get stuck within the looping fibres. All of these types of substrates tend to prevent claws wearing down naturally necessitating in regular claw trimming unless stones and/or climbing branches are provided but these would constantly require daily removal to facilitate cleaning.

On the other end of the spectrum are the aesthetically pleasing fully bioactive ecosystems in which plants, various isotopes, invertebrates and other micro-organisms are added to particulate substrates, which work together on breaking down and recycling animal waste by-products in the aim for full environmental recreation with the added benefit that once established correctly only minimal ongoing maintenance will be required. This is particularly suited to species that don't tolerate much handling. Some of the popular reptile brands such as Prorep are starting to introduce specialist pre-blended mixes but these can be prohibitively expensive if used setting up a large enclosure, therefore a more economic option could be to order the custodians from specialist online retailers and introduce them to your existing substrate. If you are interested in using bioactivity I strongly suggest doing further research beforehand to select suitable clean up custodians that will tolerate the temperature and humidity conditions matching your animals' requirements.

Alternatively many keepers take a slightly different approach somewhere in the middle ground whereby a suitable substrate medium is selected dependent upon the species with spot cleaning carried out as required to remove any visible waste products and a full deep clean generally every 1-3 months. Whilst they inherently carry the risk of ingestion the majority of substrates are extremely unlikely to cause any complications such as impaction in a healthy animal, however, there are a few that should be avoided such as calci-sand, corncobs and crushed walnut shells. In fact the majority of cases of impaction can actually be traced back to other husbandry issues, the most notable of which is dehydration.

Wood based substrates (or anything else in your enclosure) must never include cedar. The volatile compounds released from cedar are highly toxic to most small animals and its link to respiratory health issues is well documented. Pine and cypress are both closely related types of softwood but are still regularly used by many keepers in the form of orchid bark and cypress mulch/forest floor bedding; however there is no evidence of either being toxic. Both can be used where moderate levels of humidity are required as these can retain limited amounts of moisture.

Other types of wood such as beech chips, aspen, lignocel and hemp bedding tend to be used with burrowing species that prefer drier environments. With the exemption of beech chips these tend to clump together when soiled allowing for easier spot cleaning. Aubiose, a brand of hemp bedding, in particular tends to be popular with snake keepers who own large collections due to its relatively low cost however not all snakes should be kept in dry environments and if shedding problems occur the provision of a moist moss hide or another form of humidity may be of benefit.

Sphagnum moss is not only suitable for moist hides where localised humidity is required to aid shedding but is an excellent option for amphibian owners due to its natural antibacterial and anti-fungal properties together with its ability to hold large quantities of water. Invertebrate keepers may also find it useful scattered above a soil/coir type substrate to help mimic the decaying plant material often found in tropical jungles. Sedge peat is also suited for tropical rainforest inhabitants that thrive in damp humid environments having originally starting life as a mixture of moss, sedges, reeds and other bog loving plants before decomposing into its present form over a period of many years. These days people tend to be much more environmentally conscious and have shown great concern over the limited remaining resources of natural peat bogs and the continued viability of its harvest. One of peats largest uses has been garden compost and due to such concerns a more environmentally sustainable replacement was sought.

Coir is a good alternative option to peat and is sold in reptile shops under various different names like Eco Earth, Humus Brick and Plantation Soil but also available in bulk from specialist online retailers such as [www.fertilefibre.com](http://www.fertilefibre.com). Starting life as a by-product of the coconut industry, the otherwise discarded remains of coconut husks are ground up and compressing into bricks or blocks that once rehydrated with water reconstitutes into large amounts of cost effective, environmentally friendly, lightweight, absorbent substrate with small soft particles suitable for a huge range of habitat types and can additionally be planted with suitable reptile or amphibian safe fauna to create a more pleasing look and provide extra areas to hide and/or aid in photo gradient regulation.



Whilst coir can be used with most desert species and is capable of holding burrows when moist it can become rather dusty when desiccated, some owners prefer to use something a little heavier like sterile topsoil or clay based substrates like desert bedding and excavator clay, which still retains moisture below the surface but provides a more arid top layer. If topsoil is used ensure that it contains no pesticides or fertilizers as these are both highly toxic to reptiles and amphibians. Depending on the quality it should also ideally be sifted for other unwanted debris before use. Play sand may also be mixed in or used on its own.

Washed play sand is by far the safest variant of sand having lost most of the sharp edges and contaminants during the cleaning process. There are other sand varieties available falsely marketed as being safe and easily digestible if consumed by reptiles, usually these are included in starter packages to unsuspecting first time reptile owners in an array of artificial colours. Unfortunately despite all the safety claims and marketing hype granular calcium carbonate or 'calci-sand' as it is often known tends to clump together and further dehydrate the animal when ingested resulting in intestinal blockages that prove extremely difficult to remove even with specialist veterinary treatment resulting in many easily preventable premature deaths. Sand grains may also cause eye or respiratory irritation.

Crushed or ground walnut shells should also be avoided due to being indigestible, non-absorbent and generally extremely sharp following the milling process, some cases have even been reported of fatal internal organ lacerations following accidental consumption.

Whilst not technically a substrate alfalfa based herbivore food pellets have sometimes been used as a substrate for iguanas and tortoises in the belief that they will break down in the gut if eaten and therefore will not cause intestinal impactions. These pellets however tend to quickly decompose, growing bacteria and fungi when moistened by waste products and the contaminated food subsequently risks being consumed. The unstable surface can also lead to posture and foot deformity issues. For similar reasons birdseed as a substrate, sometimes used for *Uromastyx*, should also be avoided.

Similar to alfalfa pellets, corn cob also tends to get contaminated easily and is too large for most animals to pass if swallowed. To make things worse both of these swell up when moistened leading to further dehydration if consumed dry. Additionally corn cob is abrasive leading to increased risks of skin infections or illness and could also cause death by asphyxiation if lodged in the throat.

Whilst using sterile enclosures certainly eliminates the risk of impaction and reduces the likelihood of introducing parasites such as mites they are not without their pitfalls. Some solutions to the remote risks of using particulate substrates can be utilised if you feel the need. For example, to reduce the likelihood of substrate ingestion some techniques such as feeding insects/rodents in separate feeding boxes, placing greens on a more solid surface or feeding bowl. Freezing substrates and other decor at -20C or colder for at least 24 hours, or alternatively heating to 120C or more for around 3 hours is known to kill most parasitic mites, their eggs or any other unwanted pests that are occasionally unwittingly introduced from the pet store hiding amongst your purchases.

In conclusion there are many different options that are both safe and suitable for any given species and no clear cut answer can be given as to what is the best to use. Provided you stay clear of these that are known to be dangerous or harmful you should experiment to find what works best for you and your animals.

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